Genetic Brake Key to Stem Cell Fate

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Researchers at UC, Santa Barbara, have mapped the role of a genetic signal that puts the breaks on the ability of stem cells to self renew. The finding could eventually shed light on self-renewal that has run amuck as in cancer, and can immediately be put to use in managing the balancing act between self-renewal and differentiation-the process through which stem cells mature into more specific cell types such as neurons or muscle. Specifically, they found that a microRNA, a single-stranded RNA whose function is to decrease gene expression, lowers the activity of three key genes needed for embryonic stem cell self-renewal. Conversely, they found that when this microRNA, miR-145, is lost the stem cells are prevented from differentiating into more mature cells.

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Related Information: Press release, University of California, Santa Barbara

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